

Application Serial No: 09/808,973
In reply to Office Action of 1 October 2003

Attorney Docket No. 79485

REMARKS / ARGUMENTS

Claims 1-23 are currently pending in the application. Claims 1-23 appear to be rejected. Claims 1, 2, 4, 13-15, 17, 18, and 20-22 are amended. Claim 16 is cancelled without prejudice by this response.

The Examiner has rejected claims 1, 2, 3 and 4 under 35 U.S.C. § 102 as being anticipated by Konstantinou et al. (Reference A: U.S. Patent No. 6,584,201, hereinafter as Konstantinou) contending that Konstantinou discloses an apparatus that includes all the limitations recited in claim 1.

Regarding claim 1, the Examiner found that Konstantinou discloses a directional microphone (i.e., sensor circuit) designed to receive sounds, which is well known in the art to generate an electrical signal (i.e., amplitude of the detected audio signal) (Fig. 1, reference 22; column 3, lines 24-28); a microprocessor that calculates the difference between the calculated reference sound-to-noise ratio and calculated current sound-to-noise ratio, whereby "the sound-to-noise ratio is a ratio in which received sound level is the numerator and the difference between total received noise level and received sound level is the denominator" (i.e., a difference circuit) (Column 5, lines 11-59); the microprocessor then goes to a decision step to determine whether the current sound-to-noise ratio is different from the reference sound-to-noise ratio, "if there is

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a difference between the two sound-to-noise ratio, this signifies that emitted sound level may need to be adjusted in order to maintain the original sound-to-noise ratio" (i.e., control circuit for generating a control signal that effects at least one of attenuation, augmentation and maintenance of the amplitude of audio signals) (Column 5, lines 43-59).

Regarding claim 2, the Examiner found that Konstantinou discloses an amplifier (Fig. 1, reference 14 and 16; column 3, lines 49-58).

The Examiner stated that claim 3 is essentially similar to claim 1, and the Examiner rejected this claim for the reasons stated above concerning claim 1.

Regarding claim 4, the Examiner provided that Konstantinou discloses an analog-to-digital converter (Fig. 1, reference 62 and 64).

Regarding claim 5, the Examiner contended that Konstantinou discloses one embodiment of the invention that deals with the microprocessor, which determines whether emitted sound level from sound-emitting device is greater or less than a threshold amount (i.e., detect an audio signal). the Examiner then stated that "therefore, it is a criteria that needs to be met in order for the function of increasing or decreasing emitted sound to perform as usual or not (i.e., transfer for signal when the

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sensor circuit detects an audio signal) (Column 6, lines 28-45)."

The Examiner stated that claim 6 is essentially similar to claim 5 and rejected it for the reason stated above apropos of claim 5. the Examiner found that the microprocessor can also perform the operation of a sound activation circuit, and therefore, the microprocessor can also be used as a sound activation circuit.

Regarding claim 7, the Examiner found that Konstantinou discloses an apparatus that will increase or decrease emitted sound level in order to maintain the original sound-to-noise ratio if there is a difference between the current sound-to-noise ratio and reference sound-to-noise ratio by a predetermine amount (i.e., attenuation of amplitude when amplitude of the sensor circuit output signal exceed the reference audio signal amplitude by a predetermine [sic] magnitude) (Fig. 2, reference 140, 150 and 155; column 5, lines 49-52; column 6, lines 32-39).

Regarding claim 8, the Examiner found that Konstantinou discloses an apparatus that will increase or decrease emitted sound level in order to maintain the original sound-to-noise ratio if there is a difference between the current sound-to-noise ratio and reference sound-to-noise ratio by a predetermine [sic] amount (i.e., augmentation of the amplitude of the audio signals generated by the audio device when the reference audio

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signal amplitude exceeds the amplitude of the sensor circuit output signal by a predetermined magnitude) (Fig. 2, reference 140, 150 and 155; column 5, lines 49-52; column 6, lines 32-39).

Regarding claim 9, the Examiner stated that Konstantinou's apparatus will maintain the amplitude of the audio signal if there is no difference between the current sound-to-noise ratio and the reference sound-to-noise ratio. (Fig. 2, reference 140; column 5, lines 46-48).

Regarding claim 10, the Examiner found that Konstantinou discloses a remote control device that contains a signal transmitter, which communicates with the volume up control and volume down control to transmit signal to sound emitting device (i.e., transmitter circuit to transmitting the control signal to a control signal receiver of the audio device) (Fig. 1, reference 18, 20, 30 and 34; column 4, lines 33-37 and lines 49-56).

The Examiner stated that claim 12 is essentially similar to claim 5 and 6, and the Examiner rejected these claims for the reason stated above apropos of claim 5 and 6.

The Examiner stated that claim 13 is essentially similar to claims 1, 5, 6 and 12, and the Examiner rejected these claims for the reason stated above apropos of claim 1, 5, 6 and 12.

The Examiner states that claim 14 is essentially similar to claim 1 and 5, and the Examiner rejected this claim for the reason stated above apropos of claim 1 and 5.

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The Examiner stated that claim 15 is essentially similar to claim 1 and 2, and the Examiner rejected this claim for the reason stated above apropos of claim 1 and 2.

The Examiner stated that claim 16 is essentially similar to claim 1 and 5, and the Examiner rejected this claim for the reason stated above apropos of claim 1 and 5.

The Examiner stated that claim 17 is essentially similar to claim 1 and 4, and the Examiner rejected this claim for the reason stated above apropos of claim 1 and 4.

The Examiner stated that claim 18 is essentially similar to claim 1 and 2 and rejected this claim for the reason stated above apropos of claim 1 and 2.

The Examiner stated that claim 19 is essentially similar to claim 1 and 10 and rejected this claim for the reason stated above apropos of claim 1 and 10.

The Examiner stated that claim 20 is essentially similar to claim 1 and 7, and the Examiner rejected this claim for the reason stated above apropos of claim 1 and 7.

The Examiner stated that claim 21 is essentially similar to claim 1 and 8 and rejected this claim for the reason stated above apropos of claim 1 and 8.

The Examiner stated that claim 22 is essentially similar to claim 1 and 9 and rejected this claim for the reason stated above apropos of claim 1 and 9.

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Regarding claim 23, the Examiner found that Konstantinou discloses a directional microphone designed to receive sounds from a specific direction (i.e., acoustic signal sensor) and "is configured in a remote control device such that it is adjacent to and points in the same direction as remote signal transmitter, thus providing the greatest likelihood that directional microphone is pointing at sound-emitting device" (Fig. 1, reference 22, and 36; column 3, lines 24-35).

The Examiner rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Konstantinou in view of U.S. Patent Application 09/047,252 to Mellott. The Examiner stated that Konstantinou discloses an automatic volume control apparatus, but lacks a switch to permit a user to activate or deactivate the apparatus, and that Mellott discloses a switch or a button for the user to control whether or not the apparatus operates such that it provides the necessary attenuation, or not. The Examiner found that it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the automatic volume control apparatus of Konstantinou with teaching of Mellott to include a switch for the user to control whether or not the apparatus operates such that it provides the necessary attenuation, or not.

These rejections and objections are respectfully traversed in view of these amendments and remarks.

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Konstantinou et al. appear to disclose an automatic remote control device and method which compensates for ambient, environmental noise changes and sudden changes in program material volume. The microphones and circuitry associated with the volume control apparatus are located in an autonomous, preferably portable, remote control unit that will work with any existing audio/video device that is configured to respond to a remote control input. In one embodiment, the remote control device comprises a microprocessor, at least one directional microphone for receiving a sound level emitted from a sound-emitting device, and at least one omni-directional microphone for receiving the total noise level in the vicinity of the remote control device. The microprocessor located in the remote control device utilizes the received sound level and the total received noise level to calculate a reference sound-to-noise ratio. If a volume up/down control is pressed by the operator, the remote control device sends the appropriate signal to the sound-emitting device to increase or decrease the sound level, and a new reference sound-to-noise ratio is calculated. If the volume up/down control has not been used, a timed polling loop periodically measures the sound level and the total received noise level so as to calculate a current sound-to-noise ratio and to determine whether the sound-to-noise ratio has changed. If the sound-to-noise ratio has changed, then the remote control

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device sends the appropriate signal to the sound-emitting device to adjust the sound level so that the original sound-to-noise ratio is maintained. Hysteresis, in which the device determines whether a pre-determined amount of time has passed since the device last adjusted the sound level, is preferably utilized to prevent continuous fluctuations of the sound.

The Applicants disclose an apparatus and method for remotely and automatically adjusting the volume of a remotely controlled audio device. In one embodiment, the apparatus comprises a sensor circuit for continuously detecting audio signals generated by the audio device, a difference circuit for determining the difference between the amplitude of the detected audio signals and a reference audio signal amplitude and for outputting a signal that represents this difference, a difference signal transfer circuit having an input for receiving the difference signal and an output wherein the difference signal is coupled to the output when the sensor circuit outputs a signal that indicates an audio signal has been detected, and a control circuit for generating a control signal that effects attenuation, augmentation or maintenance of the amplitude of the audio signals generated by the audio device in accordance with the difference signal when the sensor circuit detects an audio signal:

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As a preliminary matter, Applicants have amended claims 1, 13 and 14 to explicitly state that the reference audio signal amplitude is obtained from a user. This amendment is supported in the specification at page 8, lines 20-23 of the specification. Many other amendments have been made to the claims to make them more definite. These other amendments were not made in response to prior art and should not be construed to be limiting.

Concerning the Examiner's § 102(b) rejections of claims 1-4, Applicants respectfully suggest that Konstantinou does not disclose each and every detail of Applicants' invention. Konstantinou teaches the use of two sensor circuits one receiving a directional signal and the other receiving an omnidirectional signal. The signal received by the directional sensor circuit is taken to be the signal of interest, and the signal received by the omnidirectional sensor circuit is taken to be the signal of interest with added ambient noise. As stated by the Examiner, the circuit taught by Konstantinou calculates the signal to noise ratio by taking the signal of interest divided by the difference between these two signals. The volume of the device is adjusted in response to this signal to noise ratio. This has the affect of adjusting the volume of the device in response to the ambient noise. Konstantinou makes no provision for user input.

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Applicants' invention, receives a single audio signal from a device which is converted to an amplitude. The audio signal amplitude is compared to a reference amplitude provided by the user. Applicants' invention makes no attempt to calculate signal to noise ratios. The invention acts to control the volume of the audio signals from the device within a threshold of this user provided reference amplitude.

Applicants respectfully suggest that Konstantinou does not show claims 1-4 of Applicants' invention because under 35 U.S.C. § 102(b) every detail of the invention must be explicitly taught by the reference. Applicants suggest that Konstantinou does not show a means for obtaining a reference audio signal amplitude from a user. Accordingly claims 1-4 should be allowable over Konstantinou. Applicants respectfully solicit reconsideration and allowance of these claims.

In reviewing the Examiner's paragraphs 7-12, Applicants note that the Examiner did not explicitly reject claims 5-10. Applicants suggest that a proper rejection should give the legal ground for the rejection, affirmatively state that the claim has been rejected and not merely reference the claim and recite statements from the prior art. Applicants suggest that claims 5-10 should be allowable based on the arguments submitted above. If the Examiner does not choose to allow the claims, the

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Applicants respectfully solicit a non-final rejection stating the Examiner's grounds for rejecting these claims.

In reviewing the Examiner's paragraphs 13-24, the Examiner appears to indicate that these claims are rejected, but these paragraphs do not provide a clear statement of the basis for the rejection because they are dependent on the previous material. Again, Applicants suggest that claims 12-23 should be allowable based on the arguments submitted above. If the Examiner does not choose to allow the claims, the Applicants respectfully solicit a non-final rejection stating the Examiner's grounds for rejecting these claims.

Concerning the Examiner's § 103 rejection of claim 11, Applicants respectfully suggest that claim 11 should be allowed over Konstantinou and Mellott in view of the remarks above. Applicants suggest that neither Konstantinou nor Mellott disclose Applicants' invention in such detail that the invention would be obvious to one of ordinary skill in the art. For example, both Konstantinou and Mellott require receipt of two audio signals. Applicants' invention only requires one. Applicants' invention as amended requires a means for obtaining a reference audio signal amplitude from a user. Neither of the cited prior art disclose such a means. Accordingly, one of ordinary skill in the art could not combine Mellott with

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Konstantinou to obtain Applicants' invention. Applicants respectfully request reconsideration and allowance of claim 11.

All of the remaining claims in the application are now believed to be in condition for allowance. Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

The Examiner is invited to telephone James M. Kasischke, Attorney for Applicants, at 401-832-4736 if, in the opinion of the Examiner, such a telephone call would serve to expedite the prosecution of the subject patent application.

Respectfully submitted,

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By



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